

Remarks

This Office Action mailed February 22, 2005 has been fully considered and this Amendment is submitted in response thereto.

Claims 1-3, 5-17, and 19-28 are now pending in this Application upon entry of this Amendment. Claims 1 and 15 have been amended, and Claims 4 and 18 have been cancelled. No new subject matter has been added to the Application.

The objection to the drawings is respectfully traversed.

The drawings were objected to because the reference numerals mentioned in the specification were not included in the drawings. A set of replacement sheets for originally-filed sheets 2, 3, and 4 (containing Figures 3, 4, and 5, respectively) is included with this Amendment. These replacement sheets include all missing reference numerals. Because the content of each box in these drawings is referred to both by reference numeral and more generally by content, it is submitted that the placement of reference numerals on the drawings adds no new subject matter to the Application. One of ordinary skill in the art would have been able to follow the flowchart without the reference numerals and add the reference numerals themselves, using nothing but the text of the specification as originally filed and the originally filed drawings.

It is thus requested that the objection to the drawings be withdrawn.

The objection to the disclosure for informalities amounting to minor draft errors is respectfully traversed.

The objection to the Abstract has been traversed by incorporating the suggestion made by the Office.

The objection to paragraph [0002] has been traversed by incorporating the suggestion made by the Office.

The objection to paragraph [0046] (i.e., at page 14, fourth to last line) has been traversed by incorporating the suggestion made by the Office. Following that sentence, another minor typographical error was corrected by changing a reference to box 316 to a reference to box 306. Applicants submit that this correction would have been recognized and the obvious correction made by one of ordinary skill in the art because of the detailed manner in which the flowchart of Figure 5 and the steps taken therethrough are described in the text.

For the above reasons, it is requested that the objection to the disclosure be withdrawn.

The rejection of Claims 1, 3, 15, and 17 under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. (U.S. Patent No. 5,073,911) in view of Hu (U.S. Patent No. 5,377,250) is respectfully traversed.

Even assuming, solely for the sake of argument, that everything asserted by the Office about Ozaki et al. and Hu is correct, and that it is proper to combine these references, Claim 1 has been amended to recite, "... utilizing feedback based on measured projections to adjust table speed during the dynamic helical scan to obtain contrast enhancement." It was explicitly recognized by the Office in the rejection of Claims 4 and 18 that Ozaki et al. and Hu together do not teach or suggest utilizing feedback to adjust table speed during a dynamical helical scan. Claim 15 has been similarly amended. Therefore, it is submitted that Claims 1 and 15 are patentable over the combination of Ozaki et al. and Hu.

Claim 3 is dependent upon Claim 1, as herein amended. When the recitations of Claim 3 are considered in combination with the recitations of Claim 1, it is submitted that Claim 3 is likewise patentable over the combination of Ozaki et al. and Hu.

Claim 17 is dependent upon Claim 15, as herein amended. When the recitations of Claim 17 are considered in combination with the recitations of Claim 15, it is submitted that Claim 17 is likewise patentable over the combination of Ozaki et al. and Hu.

IN THE DRAWINGS

Please amend the drawings by replacing sheets 2, 3, and 4 of the originally-filed drawings with the drawings attached hereto.

Sheet 2 containing Figure 3 has been amended to add references numerals 100, 102, 104, 106, 108, 110, 112, 114, 116, and 118.

Sheet 3 containing Figure 4 has been amended to add reference numerals 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, and 222.

Sheet 4 containing Figure 5 has been amended to add reference numerals 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, and 324.

All of the added reference numerals are supported by references in the specification as originally filed.

For the above reasons, it is requested that the rejection of Claims 1, 3, 15, and 17 over the combination of Ozaki et al. (U.S. Patent No. 5,073,911) in view of Hu (U.S. Patent No. 5,377,250) be withdrawn.

The rejection of Claims 2 and 16 under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. in view of Hu as applied to Claims 1 and 15, and further in view of Johnson et al. (U.S. Patent 5,891,030) is respectfully traversed.

Ozaki et al. as modified by the teachings of Hu is explicitly recognized by the Office as not disclosing a magnetic resonance imaging apparatus. Johnson et al. was asserted as teaching the "art-recognized equivalency of computed tomography and magnetic resonance imaging systems." Even assuming, solely for the sake of argument, that this assertion is correct and that it is proper to combine Johnson et al. with Ozaki et al. and Hu in the manner asserted by the Office, Johnson et al. is directed to a system, method, and article of manufacture for imaging tubular structures of the human body. (See Abstract.) Johnson et al. adds nothing to Ozaki et al. and Hu concerning utilizing feedback to adjust table speed during a dynamical helical scan.

By contrast, Claim 1, as herein amended, recites, "... utilizing feedback based on measured projections to adjust table speed during the dynamic helical scan to obtain contrast enhancement." Claim 15 has been similarly amended. It was explicitly recognized by the Office in the rejection of Claims 4 and 18 that Ozaki et al. as modified using the teachings of Hu do not teach or suggest utilizing feedback to adjust table speed during a dynamical helical scan, as recited in Claim 1. Therefore, it is submitted that Claims 1 and 15 are patentable over the combination of Ozaki et al. in view of Hu and further in view of Johnson et al.

Claim 2 is dependent upon Claim 1. When the recitations of Claim 2 are considered in combination with the recitations of Claim 1, it is submitted that Claim 2 is likewise patentable over the combination of Ozaki et al. in view of Hu and further in view of Johnson et al.

Claim 16 is dependent upon Claim 15. When the recitations of Claim 16 are considered in combination with the recitations of Claim 15, it is submitted that Claim 16 is likewise

patentable over the combination of Ozaki et al. in view of Hu and further in view of Johnson et al.

For the above reasons, it is requested that the rejection of Claims 2 and 16 under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. in view of Hu as applied to Claims 1 and 15, and further in view of Johnson et al. be withdrawn.

The rejection of Claims 4 and 18 under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. in view of Hu as applied to Claims 1 and 15 and further in view of Heuscher (U.S. Patent 5,262,946) is respectfully traversed.

This rejection no longer applies to Claims 4 and 18, which have been cancelled. Thus, the rejection should be withdrawn. However, in modified form, features from Claims 4 and 18 have been incorporated into Claims 1 and 15, respectfully, so the patentability of Claims 1 and 15 over Ozaki et al. in view of Hu and further in view of Heuscher is discussed below.

The Office explicitly recognized that Ozaki et al. as modified by Hu does not disclose utilizing feedback to adjust table speed during a dynamical helical scan.

The Office asserted that Heuscher teaches feedback to adjust table speed during a dynamical helical scan, and cited the last six lines of the Abstract as support for this proposition. However, the Abstract and the front page drawing (corresponding to Figure 1) describe and show only a cardiac monitor 90 "or other physiological condition monitor" that monitors for movement of the subject so that one or more of the rotational speed of the x-ray source, movement of the patient table, energy of the x-ray beam, or filter function can be varied accordingly. Col. 3, lines 12-14 recite that "... rotation of the x-ray tube and movement of the table are synchronized such that variations in one cause a corresponding variation in the other." Col. 3, lines 19-25 recite that "the rotation of the gantry is synchronized with psychological movement, e.g., the R-wave of the patient's ECG. In this manner, the gantry rotation can be varied such that the same structures are in the same position for each rotation. Table motion can still be synchronized to match the rotational variations such that a helical scan can still be

obtained." These recitations are mirrored at col. 8, lines 31-39. Although at col. 8, lines 40-50 it is recited that "by lightly filtering views with the heart in one preselected phase and more heavily filtering views taken when the heart is in another phase, blurring of cardiac and cardiac related motion is diminished," and "movement of the source may be synchronized with other subject movement," nowhere does Heuscher teach or suggest a method in which feedback based on measured projections is utilized to adjust table speed during the dynamic helical scan to obtain contrast enhancement.

By contrast, Claim 1, as herein amended, recites a step of "utilizing feedback based on measured projections to adjust table speed during the dynamic helical scan to obtain contrast enhancement." Claim 15 has been similarly amended. See paragraph [0049]. No such step is shown in the cited references. Therefore, it is submitted that Claims 1 and 15 are patentable over Ozaki et al. in view of Hu and further in view of Heuscher, as are all claims dependent from either of these two claims.

Because Claims 4 and 19 have been cancelled, and Claims 1 and 15, as herein amended, are patentable over Ozaki et al. in view of Hu and further in view of Heuscher for the reasons given above, it is requested that the rejection of Claims 4 and 18 under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. in view of Hu as applied to Claims 1 and 15 and further in view of Heuscher be withdrawn.

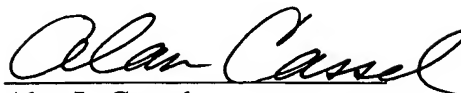
Applicants gratefully acknowledge the indication of allowable subject matter in Claims 5-14 and 19-28. However, Applicants believe that the Statements of Reasons for the Indication of Allowable Subject Matter in this case is improper as it merely copies each limitation of the claim into the reasons for allowance. While applicant believes that the claims are allowable, applicant does not acquiesce that patentability resides in each feature, exactly as expressed in the claims, nor that each feature is required for patentability.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

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Respectfully Submitted,

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